

C.H.I
IT IS DESIRED TO CLAIM AND SECURE BY LETTERS PATENT:

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1. A fire-perimeter, temperature-differentiating mapping system adapted to create a temperature-level-differentiated, visually readable perimetral outline of a ground fire, with such outline being suitable for in-scale, registered overlay of a related topographic map and the like, said system comprising

thermal data-acquisition apparatus carryable on a support platform for moving over a ground fire and including means capable of outputting, selectively, different fire-perimeter, thermal-image-data streams which are differentiated by specific isothermal characteristics,

latitude/longitude data-acquisition apparatus also so carryable and including means capable of outputting a latitude/longitude positional data stream, said thermal and latitude/longitude data-acquisition apparatuses being functional simultaneously to acquire time-related and positionally related data,

thermal and latitude/longitude data-recording apparatus also so carryable and including plural recording channels each capable of recording time-synchronous thermal and latitude/longitude data,

means operatively connecting said two data-acquisition apparatuses and said data-recording apparatus including switching means interposed the latter and said thermal data-acquisition apparatus operable to direct selectively to different channels different isothermally differentiated, fire-perimeter data streams to different channels,

data reading and analysing means operatively coupleable to said data-recording apparatus for extracting therefrom and analysing data contained in each of said channels, and being operative, as a consequence of having analysed such data, to produce

an X-Y graphic-plotter control signal effective to drive such a plotter in a manner causing the same to create a perimetral outline of a fire reflected in the data contained in the channels, with this outline containing line characteristics that are different from one another, with each such line characteristic being specific to a different one of the isothermal characteristics selected for recording in the different channels, and

an X-Y graphic plotter operatively connected to said reading and analysing means for receiving and responding to a control signal produced by the latter to produce a proper-scale registrable overlay of the perimetral outline of an observed fire, with such outline having the different line characteristics just mentioned suitable for registered overlaying onto an in-scale, related topographic map.

2. The system of claim 1 which further includes an optical data-acquisition subsystem for acquiring and recording an optical depiction of the fire area "viewed" by the thermal data-acquisition apparatus, all for the purpose of permitting selected visual overlay of recorded optical and recorded thermal information.

3. A method for creating a temperature-level-differentiated, visually readable, perimetral outline of a ground fire, with such outline being suitable for in-scale, registered overlay of a related topographic map and the like, said method comprising

acquiring and recording data to illustrate thermally, and in selected, differentiated isothermal levels, the perimetral outline of a ground fire,

linking, on a common time basis with such data, related latitude/longitude positional data,

analysing all of such data to produce an X-Y graphic-plotter control signal which is effective to drive such a plotter in a manner causing the latter to create a perimetral outline of the fire reflected in the recorded data, with this outline containing line characteristics that are different from one another, with each such line characteristic being specific to a different one of the selected, differentiated isothermal levels, and

utilizing such signal to drive such a plotter for the purpose of causing the latter to produce a proper-in-scale, registrable overlay of the perimetral outline of an observed fire, with such outline having the different line characteristics just mentioned suitable for registered overlaying onto an in-scale, related topographic map.

4. The method of claim 3 which further includes acquiring and recording an optical depiction of the fire area "viewed" thermally, and utilizing such depiction to permit a recordable and visually presentable overlay of time-related thermal and optical imagery.